

CLAIMS

What is claimed is:

- 5 1. An instrumentation system, comprising:
 - a set of instruments each having a clock and an event buffer for periodically logging a data record each data record comprising a set of measurement data and a time-stamp obtained from the corresponding clock;
 - 10 means for maintaining a synchronized time in the clocks;
 - means for stopping the logging in the event buffers in response to an event of interest;
 - 15 means for correlating the data records in the event buffers in response to a time-stamp associated with the event of interest.
2. The instrumentation system of claim 1, wherein
20 the event buffers are circular buffers.
3. The instrumentation system of claim 1, wherein
25 each event buffer logs the data records according to a corresponding predetermined sample interval which is derived from the corresponding clock.
4. The instrumentation system of claim 1, wherein
30 the means for stopping the logging in the event buffers includes means for providing an event trigger to the instruments such that each event buffer stops logging in response to the event trigger.

5. The instrumentation system of claim 1, wherein
the means for correlating the data records in the
event buffers includes means for correlating the data
records in response to a time-stamp for the event of
interest.

6. The instrumentation system of claim 5, wherein a
subset of the instruments include means for obtaining
the time-stamp for the event of interest via a
communication network.

7. An instrument, comprising:

clock;

event buffer for periodically logging a data
record each data record comprising a set of
measurement data and a time-stamp obtained from the
clock;

means for maintaining a synchronized time in the
clock;

means for stopping the logging in the event
buffer in response to an event of interest;

means for correlating the data records in the
event buffer in response to a time-stamp associated
with the event of interest.

8. The instrument of claim 7, wherein the event
buffer is a circular buffer.

9. The instrument of claim 7, wherein the event
buffer logs the data records according to a
predetermined sample interval which is derived from
the clock.

10. The instrument of claim 7, wherein the means for
stopping the logging in the event buffer includes
means for generating an event trigger such that the
event buffer stops logging in response to the event
trigger.

11. The instrument of claim 7, wherein the means for
correlating the data records in the event buffer
includes means for correlating the data records in
response to a time-stamp for the event of interest.

12. The instrument of claim 11, further comprising
means for obtaining the time-stamp for the event of
interest via a communication network.

15 13. A method for time correlation of measurements in
an instrumentation system, comprising the steps of:

providing each of a set of instruments in the
instrumentation system with a synchronized time base;

20 periodically logging a data record each
comprising a set of measurement data and a time-stamp
obtained using the synchronized time base;

stopping the logging of the data records in
response to an event of interest;

25 correlating the data records in response to a
time-stamp associated with the event of interest.

14. The method of claim 13, wherein the step of
periodically logging comprises the step of logging a
30 window of data records including a last set of x
obtained measurements.

15. The method of claim 13, wherein the step of periodically logging comprises the step of logging the data records according to a corresponding predetermined sample interval.

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16. The method of claim 13, wherein the step of correlating the data records includes the step of correlating the data records in response to a time-stamp for the event of interest.

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17. The method of claim 16, further comprising the step of obtaining the time-stamp for the event of interest via a communication network.